Claims

1. A compound of the formula

$$A^1{}_n\, A^2{}_n\, A^3{}_n\, A^4\, A^5\, A^6\, A^7\, A^8\, A^9\, A^{10}\, A^{11}\, A^{12}\, A^{13}\, A^{14}\, A^{15}\, A^{16}\, A^{17}\, A^{18} \qquad (1)$$

and acylated and/or amidated forms thereof,

wherein each n is independently 0 or 1;

A^1, A^2, and A^3 are each independently any amino acid;

A^4, A^{12}, and A^{17} are independently acidic amino acids;

A^{13}, A^{14}, A^{15}, and A^{18} are independently aromatic amino acids;

A^5, A^7, A^8, A^{11}, and A^{16} represent any amino acid;

A^6, A^9, and A^{10} represent independently a basic amino acid or a polar neutral amino acid;

wherein each of said amino acids may be in the L form, racemic form, or D form.

2. The compound of claim 1 wherein all amino acids are gene encoded.

3. The compound of claim 1 wherein all linkages between A^i subunits are amide linkages.

4. The compound of claim 1 where all of A^i are in the D form.

5. The compound of claim 1 wherein all of A^i are in the L form.

6. The compound of claim 1 wherein each of A^4, A^{12} and A^{17} is independently aspartic or glutamic.

7. The compound of claim 1 wherein each of A^{13}, A^{14}, A^{15} and A^{18} is independently phenylalanine or tyrosine.

8. The compound of claim 1 wherein A^8 is cysteine.

9. The compound of claim 1 wherein each of A^6, A^9 and A^{10} is independently lysine, histidine, arginine, glutamine, or asparagine.

10. The compound of claim 1 which is selected from the group consisting of AALEAQICQQIEYYFGDF, AALQAKICHQIQYYFGQF, QQQEAKICHQIEYYFGDF and AALEAKICHQIEYQFGDF.

11. The compound of claim 1 which is in isolated or purified form and is selected from the group consisting of ALEAKICHQIEYYFGDF, AALEAKICHQIEYYFGDF, LDLDTKICEQIEYYFGDF, AALEAKICHQIEEYYFGDF, DDADQRIIKQLEYYFGNI, VSKLEASTIRQEYYFGDA and QERAIIRQVEYYFGDF.

12. A pharmaceutical, veterinary or agricultural/horticultural composition which comprises the compound of claim 1 along with a suitable excipient.

13. A nucleic acid molecule comprising a nucleotide sequence encoding the compound of claim 2.

14. A recombinant expression system comprising a nucleotide sequence encoding the compound of claim 2 operably linked to control sequences effective for its expression.

15. A recombinant host cell modified to contain the expression system of claim 14.

16. The recombinant host cell of claim 15 wherein said expression system is integrated into the genome of said host cell.

17. A method to produce the compound of claim 2, which method comprises effecting expression of said compound from the expression system of claim 14.

18. The expression system of claim 14 which is included in a viral vector.

19. The viral vector of claim 18 which is an adenoviral vector or a retroviral vector.

20. A method to treat viral infection in a plant or animal subject which method comprises administering to said subject an antivirally effective amount of the compound of claim 1.

21. The method of claim 20 wherein said method further comprises administering at least one additional antiviral agent.

22. The method of claim 21 wherein said administering of the compound and said at least one additional antiviral agent is substantially simultaneous.

23. The method of claim 21 wherein said administering of the compound of claim 1 and said at least one antiviral compound is sequential.

24. The method of claim 21 wherein said additional antiviral compound is I-RNA.

25. A method to treat viral infection in a plant or animal subject, which method comprises administering to said subject an antivirally effective amount of a nucleotide sequence encoding the compound of claim 2.

26. The method of claim 25 wherein said nucleotide sequence is comprises in an expression system compatible with the cells of said subject.

27. The method of claim 25 wherein said method further comprises administering at least one additional antiviral agent.

28. The method of claim 27 wherein said administering of the compound and said at least one additional antiviral agent is substantially simultaneous.

29. The method of claim 27 wherein said administering of the compound of claim 1 and said at least one antiviral compound is sequential.

30. The method of claim 27 wherein said additional antiviral compound is I-RNA.

31. A method to deliver a compound selectively to the liver, which method comprises administering to a subject containing a liver a desired compound coupled to the compound of claim 1.

32. Antibodies specifically immunoreactive with the compound of claim 1.

33. The antibodies of claim 32 which are immunospecific fragments.

34. The antibodies of claim 33 which are monoclonal antibodies.

35. A method to purify the compound of claim 1, which method comprises contacting a sample containing said compound with antibodies specifically immunoreactive therewith, said antibodies coupled to a solid support.